IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Gary M. Moore		
Assignee:	Moore Epitaxial Inc.		
Title:	GAS FLOW CONTROLLER SYSTEM		
Serial No.:	09/399,611	Filed:	September 20, 1999
Examiner:	Fieler, E.	Group Art Unit:	1763
Docket No.:	MTEC1010		

Monterey, CA
April 17, 2001

Assistant Commissioner for Patents
Washington, D.C. 20231

#78
4/25/01

AMENDMENT

Dear Sir:

In response to the Office Action dated January 19, 2001, please amend the above application as follows:

IN THE DESCRIPTION

Please replace the paragraph beginning at Page 4, line 29, with the following rewritten paragraph:

--After the high dopant concentration process gas was fully removed from reactor 14, the lightly doped P type silicon layer was deposited. Valve 42 was opened and process gas A, hereinafter referred to as low dopant concentration process gas, flowed through MFC 32 through valve 42 to exhaust 23 until the mass flow rate of the flow through MFC 32 stabilized. Valve 40 was opened and valve 42 was closed thereby providing the low dopant concentration process gas into reactor 14. The low dopant concentration process gas reacted with heated

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substrates 16 and formed the lightly doped P type silicon layer on substrates 16.--

Please replace the paragraph beginning at Page 9, line 11, with the following rewritten paragraph:

--Also in accordance with the present invention, a method of controlling gas flow to a reactor includes opening a first gas manifold inlet valve coupled between a first mass flow controller, e.g., a first regulator, and a gas manifold and regulating a mass flow rate of a flow of a first process gas through the first gas manifold inlet valve to the gas manifold with the first mass flow controller. The method further includes opening a gas manifold exhaust valve coupled between a second mass flow controller, e.g., a second regulator, and an exhaust and regulating a mass flow rate of a flow of a second process gas through the gas manifold exhaust valve to the exhaust with the second mass flow controller.--

Please replace the paragraph beginning at Page 13, line 16, with the following rewritten paragraph:

--For example, a process gas may be supplied to point of use 501 by gas flow controller system 500 to grow a layer on a semiconductor substrate. Short process gas supply line 506 significantly reduces or even eliminates the prior art problem of creating a transition layer after gas flow controller system 500 disconnects the process gas line or lines in the plurality of process gas lines 505 providing the process gas.--

Please replace the paragraph beginning at Page 14, line 2, with the following rewritten paragraph:

--Thus, gas flow controller system 500 of this invention permits formation of abrupt transitions between layers on a substrate using prior art processing equipment without modification to the processing reactor itself or installation of new substrate processing equipment. However, in one embodiment, to enhance formation of abrupt transitions between

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In operation a substrate, gas flow controller system 500 of this invention is used in combination with a gas dispersion head of Moore et al., related, co-filed and commonly assigned U.S. Patent Application Serial No. 09/399,115, entitled "GAS DISPERSION HEAD AND METHOD", which is herein incorporated by reference in its entirety. Since this invention eliminates the need to obtain new processing reactors, the cost of production of substrates with state of the art feature sizes is reduced.--

Please replace the paragraph beginning at Page 17, line 24, with the following rewritten paragraph:

--As indicated above, gas flow controller system 500 is located as close as physically possible to injector ports 518 of semiconductor processing reactor 514 so as to minimize the length of process gas supply line 506. If possible, output port 568 of gas manifold 540 is connected directly to injector ports 518. The important aspect is to minimize the volume of gas in the piping, i.e., gas manifold 540 and process gas supply line 506, between gas manifold inlet valves 542, 544, 546, 548 and injector ports 518. Thus, when one or more of gas manifold inlet valves 542, 544, 546, 548 are closed, the time required to purge or evacuate gas manifold 540 and process gas supply line 506 is minimized because the volume of gas has been minimized. Consequently, there is not enough of the process gas available to from a transition layer of any consequence.--

IN THE CLAIMS

Please cancel Claims 23-24 without prejudice.

Please amend Claims 10, 22, 25-26 as follows:

10. (AMENDED) A system comprising:

a gas manifold;

a first process gas source located at a first location;

a first regulator coupled to said first process gas source, said first regulator located at said first location;

a first gas manifold inlet valve coupled between said first regulator and said gas manifold, wherein said gas

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